

QUEST

ADVENTURES IN THE WORLD OF SCIENCE

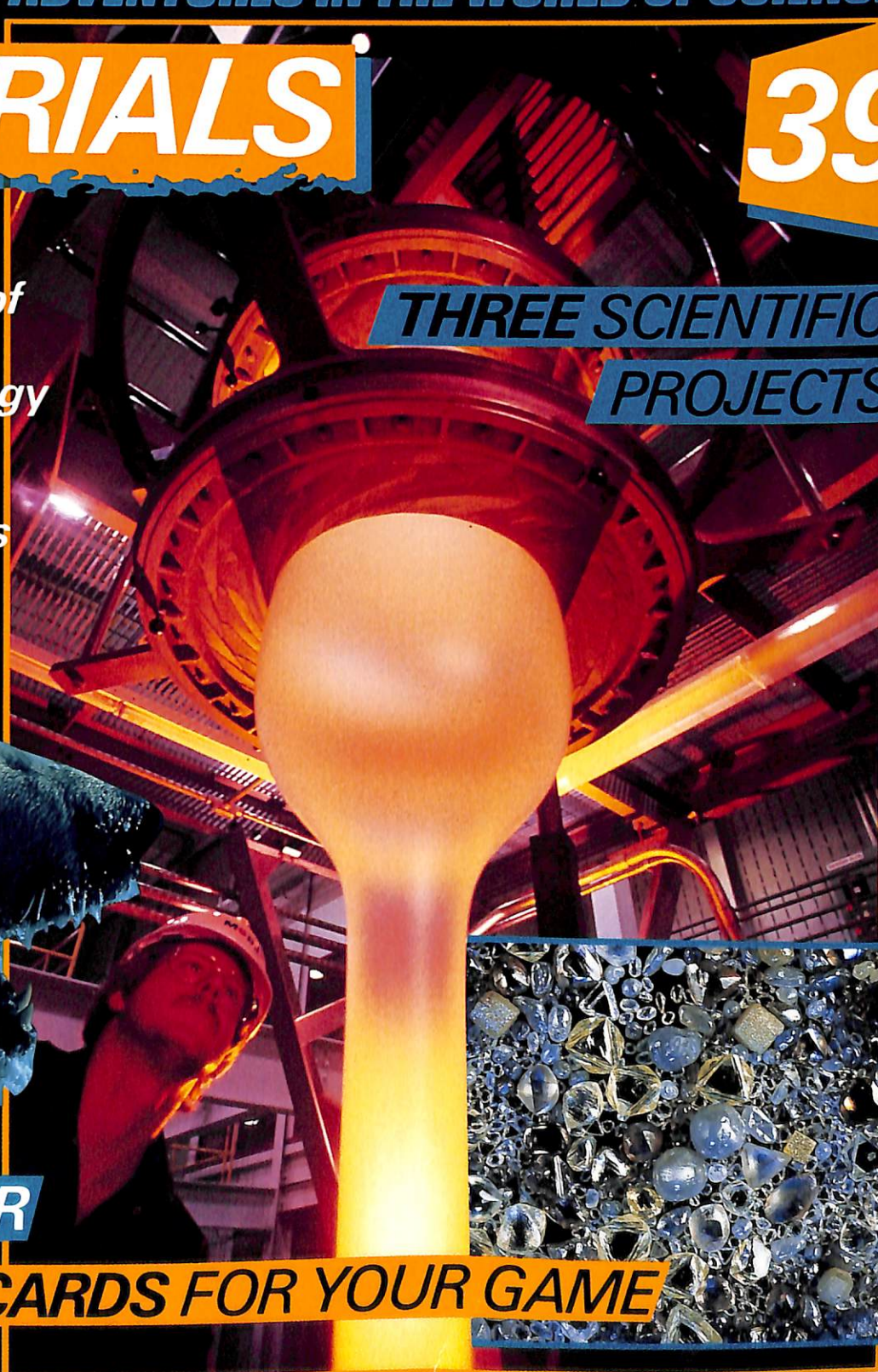
MATERIALS

39

FACT FILES ON:

- ▶ *The beginnings of matter*
- ▶ *Timber technology*
- ▶ *Artificial fibres*
- ▶ *Animal skins*
- ▶ *Metals and alloys*
- ▶ *Fantastic plastic*
- ▶ *Hi-tech ceramics*

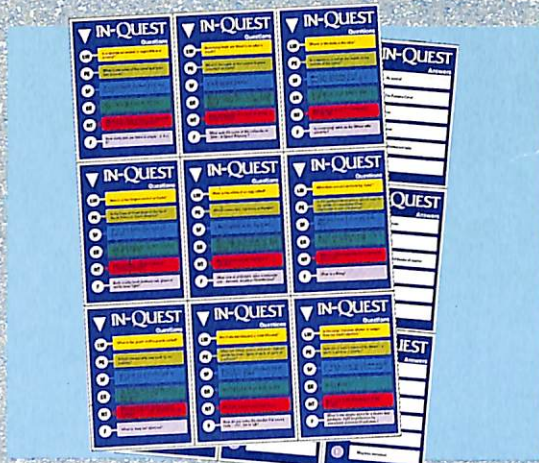
THREE SCIENTIFIC PROJECTS

**GIANT POSTER****MORE Q & A CARDS FOR YOUR GAME**

INSIDE THIS PACK

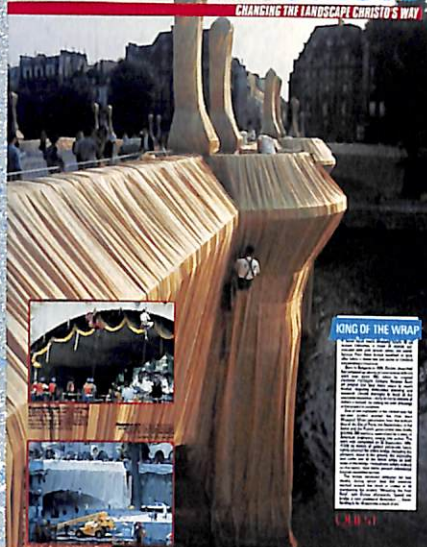
FACT FILES

- Biodegradable plastic
- Semiconductors ► Fur and feathers ► Engineered wood ► Future ceramics ► Mining metals ► Shaping plastic ► Super-heavy elements ► Tree scientists



In-Quest Q&A cards

MATERIAL PROJECTS



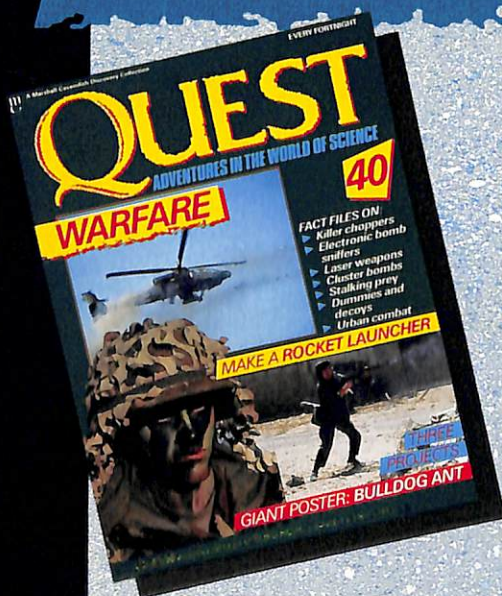
POSTER

The wrapped bridge



THREE SCIENTIFIC PROJECTS

COMING IN QUEST 40 WARFARE



FACT FILES INCLUDE:

- Laser weapons
- Animal subterfuge
- Counter terrorism
- Attack helicopters
- Bombs and mines
- Roadblocks
- Deception technology



MODEL
Rocket launcher



POSTER
Insect warrior

ISSN 1350-3766





PROJECTS

MATERIALS

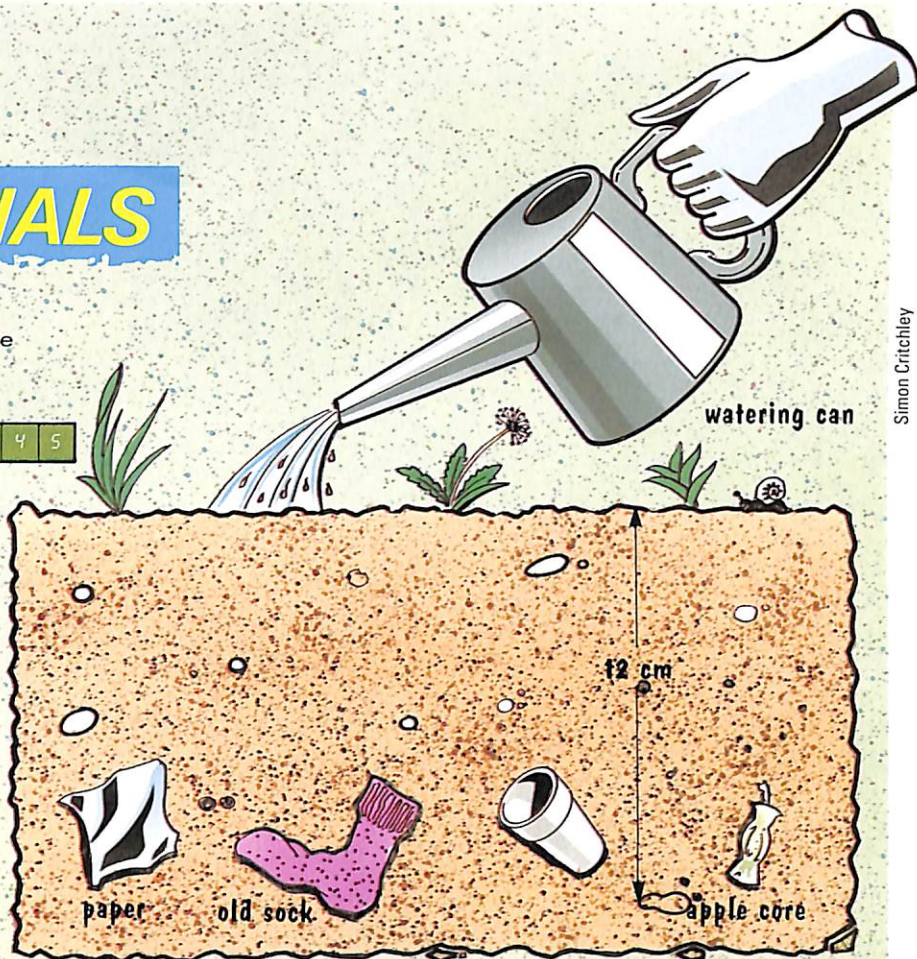
Discover which common objects are biodegradable and which are not.

GREEN MATERIALS



If you bury a variety of common household items, some will be eaten by microbes in the soil.

You will need several items to bury. Try and find an old-nylon stocking, an old cotton sock or hanky, a piece of paper, some plastic wrap, some wool, a styrofoam or plastic cup, a piece of aluminium foil and an apple core. Dig a hole 12 cm deep for each item. Put one item in each hole, cover it with soil, then dampen the soil. Mark each hole so that you know what is buried there. Leave the items buried, watering them every day. Then, after 30 days, dig them up. You will find that the food, paper, wool and cotton will have begun to disintegrate whereas the plastic and metal will have remained.



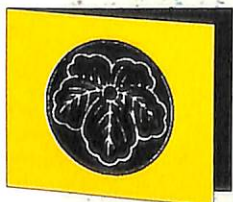
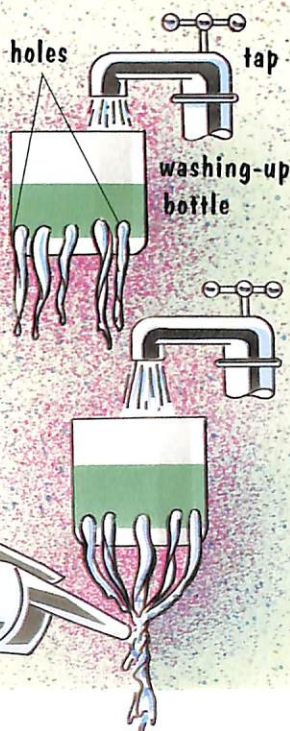
Simon Critchley

ADVENTURES IN THE WORLD OF SCIENCE

TIE WATER IN KNOTS



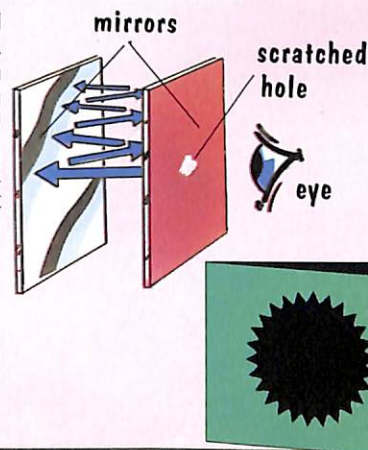
You need a plastic soft-drink or washing-up bottle; a tap and a nail. Make 5 holes near the bottom of the bottle, each about 5 mm apart. Place it in a sink and turn on the cold tap. As soon as the bottle starts to fill, 5 streams of water will come out of the holes. If you 'pinch' the streams with your fingers you will be able to 'knot' them. The water is pulled together by the surface tension. If you then brush your hand across the holes the water will separate again into 5 distinct streams.



SEEING INFINITY



You need two small, old mirrors and a needle. Carefully scratch a hole in the centre of the backing of one of the mirrors. Hold both mirrors up, facing each other and look through the hole so that you can see its reflection in the opposite mirror. When the two mirrors are aligned in this way you will be able to see an infinite number of reflections as the light waves bounce back and forth.



PROJECT INFORMATION



Each QUEST project and model has its own difficulty rating: 1 very simple, 2 simple, 3 intermediate, 4 advanced, 5 complicated.

WARNING!

Every care has been taken to ensure projects are as safe as possible. However, parents should supervise all projects. The publisher can accept no liability for injury.

MATERIALS: THE PERIODIC TABLE OF ELEMENTS

Legend:

- Alkali metals
- Alkaline earth metals
- Transition metals
- Noble gases
- Lanthanide series
- Actinide series

Callout for Cobalt (Co):

- Chemical Symbol: Co
- Atomic number: 27
- Element name: Cobalt
- Atomic weight: 58.9332

Note: Number of electrons in each shell, beginning with the K shell, top.

The periodic table provides basic information about all the known chemical elements. Eight major classes of elements are shown in different colours. Hydrogen, however, is shown without colour because it does not belong to any one class.

MATERIAL

PROJECTS

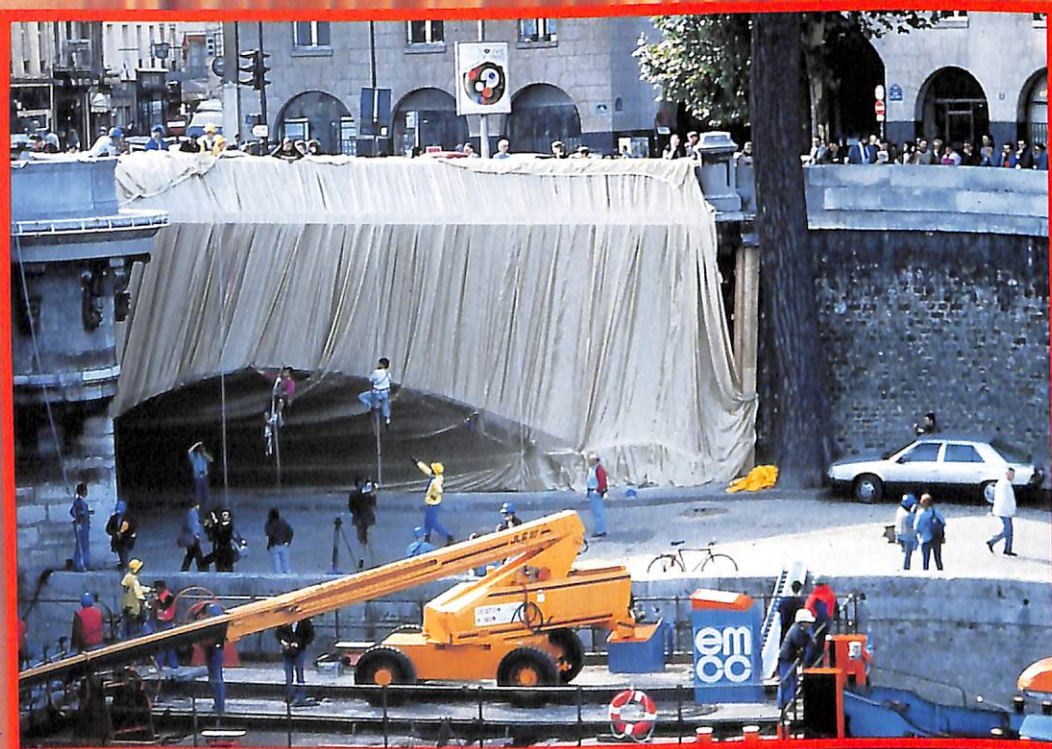
CHANGING THE LANDSCAPE CHRISTO'S WAY





Suspended from ropes, Christo's team begin to unfurl the fabric. This was eventually pulled tight to every contour of the bridge by over 13,000 metres of rope and secured by massive steel chains encircling the base of each tower, 1 metre under water.

Wrapping an arch: the fabric was secured on one parapet of the bridge, then pulled through the arch and painstakingly anchored to the other parapet.



All photos: Rex Features/© Christo 1985 With thanks to Jeanne-Claude Christo

KING OF THE WRAP

A white nylon fence billowing nearly 40 km across California, a chain of islands surrounded with pink woven fabric, the world-famous Pont Neuf bridge swathed in gold, silky fabric – these are just some of Christo's extraordinary creations.

Born in Bulgaria in 1935, Christo Javacheff has whipped up storms of controversy with his work ever since 1961, when he created *Dockside Packages*, *Cologne Harbour*. Each art project can take many years to reach fruition, requiring meticulous planning and research. Christo manages to meet all the inevitable expenses – likely to run to millions of dollars – himself, by selling his own drawings of the project in progress.

One of the highlights of his career was his ten-year project entitled the *Pont Neuf Wrapped*. When permission from the authorities of the City of Paris, the Department of the Seine and the French government was finally granted, 300 workers, supervised by a team of American engineers, swung into action. The work was completed on 22 September 1985: 41,000 sq metres of golden polyamide fabric tightly covered the entire bridge, including the parapets, down to the ground, the sidewalks and curbs and all the street lamps on both sides of the bridge. Pedestrians simply walked on the fabric; river traffic passed unhindered through swaddled arches.

The bridge remained wrapped for two weeks, during which time 600 monitors worked around the clock in crews of 40 maintaining the project. 'Wrapping the Pont Neuf', said Christo afterwards, '(gave) the bridge a new sculptural dimension ... transforming it, for 14 days into a work of art.'

QUEST